Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (currently amended) An operational amplifier for use in a switched capacitor circuit, the operational amplifier comprising:

a grounded source operational amplifier circuit; ~~and~~

a dynamic current switching circuit coupled to the grounded source operational amplifier circuit, wherein the dynamic current switching circuit is configured to reduce power dissipation in the grounded source operational amplifier circuit; and

an upper gain enhancement circuit including a first PMOS cascode, a second PMOS cascode, and an AUXP operational amplifier, wherein the upper gain enhancement circuit maintains an upper gain bias voltage across a first PMOS current source and across a second PMOS current source.

2. (previously presented) The operational amplifier according to claim 1, wherein the grounded source operational amplifier circuit includes:

a main amplifier core circuit; and

a biasing circuit.

3. (canceled).

4. (currently amended) The operational amplifier according to claim ~~3~~ 1, wherein the upper gain bias voltage is about 500mV.

5. (previously presented) The operational amplifier according to claim 1, further comprising a lower gain enhancement circuit including a first NMOS cascode, a second NMOS cascode and an AUXN operational amplifier, wherein the lower gain enhancement circuit maintains a lower gain bias voltage across a main input pair.

6. (previously presented) The operational amplifier according to claim 5, wherein the lower gain bias voltage is about 400mV.

7. (previously presented) The operational amplifier according to claim 1, wherein the dynamic current switching circuit includes:

a main mirror diode;

a main fixed current source;

a first current switch; and

a second current switch.

8. (currently amended) ~~The operational amplifier according to claim 2, further comprising~~ An operational amplifier for use in a switched capacitor circuit, the operational amplifier comprising:

a grounded source operational amplifier circuit, wherein the grounded source operational amplifier circuit includes:

a main amplifier core circuit; and

a biasing circuit;

a dynamic current switching circuit coupled to the grounded source operational amplifier circuit, wherein the dynamic current switching circuit is configured to reduce power dissipation in the grounded source operational amplifier circuit; and

a first main leg and a second main leg in a branch of the main amplifier core circuit, wherein the first main leg and the second main leg are configured such that an input pair bias current and an output pair bias current flow in the branch.

9. (currently amended) The operational amplifier according to claim 8, wherein when the grounded source operational amplifier circuit is in a reset state[[,]] and an input signal is high, ~~and~~ then the second current switch directs a reset current through its drain, thereby allowing none of the reset current to flow through the main mirror diode, ~~and through each of~~ the first main leg, and the second main leg.

10. (currently amended) The operational amplifier according to claim 9, wherein the reset current flowing through each of the first main leg and the second main leg is about ~~250uA~~ 250μA.

11. (currently amended) The operational amplifier according to claim 8, wherein when the grounded source operational amplifier circuit is in an amplification state and the input signal is low, then the second current switch is off, thereby allowing an amplification current to flow through the main mirrored diode, the first current switch, the second current switch, the first main leg, and the second main leg.

12. (previously presented) The operational amplifier according to claim 11, wherein the amplification current flowing through each of the first main leg and the second main leg is about 1.2mA.

13. (previously presented) The operational amplifier according to claim 2, wherein a common mode output voltage is about 1.5V.

14. (previously presented) The operational amplifier according to claim 2, wherein a common mode input voltage is about 1.1V.

15. (currently amended) An operational amplifier for use in a switched capacitor circuit, the operational amplifier comprising:

a main amplifier core circuit including:

a first main leg and a second main leg in a branch of the main amplifier core circuit, wherein the first main leg and the second main leg are configured such that an input pair bias current and an output pair bias current flow in the branch,

an upper gain enhancement circuit including a first PMOS cascode, a second PMOS cascode, and an AUXP operational amplifier, wherein the upper gain enhancement circuit maintains an upper gain bias voltage across a first PMOS current sources and a second PMOS current source, and

a lower gain enhancement circuit including a first NMOS cascode, a second NMOS cascode, and an AUXN operational amplifier, wherein the lower gain enhancement circuit maintains a lower gain bias voltage across a main input pair;

a biasing circuit; and

a dynamic current switching circuit coupled to the main amplifier core circuit, wherein the dynamic current switching circuit is configured to reduce power dissipation in the ~~operational~~ main amplifier core circuit.

16. (previously presented) The operational amplifier according to claim 15, wherein the upper gain bias voltage is about 500mV.

17. (previously presented) The operational amplifier according to claim 15, wherein the lower gain bias voltage is about 400mV.

18. (previously presented) The operational amplifier according to claim 15, wherein the dynamic current switching circuit includes:

a main mirror diode;

a main fixed current source;

a first current switch; and

a second current switch.

19. (currently amended) The operational amplifier according to claim 18, wherein when the ~~operational~~ main amplifier core circuit is in a reset state and an input signal is high, then the second current switch directs a reset current through its drain, thereby allowing none of the reset current to flow through the main mirror diode, the first main leg, and the second main leg.

20. (currently amended) The operational amplifier according to claim 19, wherein the reset current flowing through each of the first main leg and the second main leg is about ~~250uA~~ 250μA.

21. (currently amended) The operational amplifier according to claim 18, wherein when the ~~operational~~ main amplifier core circuit is in an amplification state and the input signal is low, then the second current switch is off, thereby allowing an amplification current to flow through the main mirrored diode, the first current switch, the second current switch, the first main leg, and the second main leg.

22. (previously presented) The operational amplifier according to claim 21, wherein the amplification current flowing through each of the first main leg and the second main leg is about 1.2mA.

23. (previously presented) The operational amplifier according to claim 15, wherein a common mode output voltage is about 1.5V.

24. (previously presented) The operational amplifier according to claim 15, wherein a common mode input voltage is about 1.1V.

25. (currently amended) An operational amplifier for use in a switched capacitor circuit, the operational amplifier comprising:

a main amplifier core circuit including a first main leg and a second main leg in a branch of the main amplifier core circuit, wherein the main amplifier core circuit includes an upper gain enhancement circuit including a first PMOS cascode, a second PMOS cascode, and an AUXP operational amplifier, and wherein the upper gain enhancement circuit maintains an upper gain bias voltage across a first PMOS current source and a second PMOS current source;

a biasing circuit; and

a dynamic current switching circuit coupled to the main amplifier core circuit,

wherein the dynamic current switching circuit is configured to reduce power dissipation in the operational amplifier circuit.

26. (canceled)

27. (previously presented) The operational amplifier according to claim 25, wherein the main amplifier core circuit includes a lower gain enhancement circuit including a first NMOS cascode, a second NMOS cascode, and an AUXN operational amplifier, further wherein the lower gain enhancement circuit maintains a lower gain bias voltage across a main input pair.

28. (previously presented) The operational amplifier according to claim 25, wherein the upper gain bias voltage is about 500mV.

29. (previously presented) The operational amplifier according to claim 25, wherein the lower gain bias voltage is about 400mV.

30. (previously presented) The operational amplifier according to claim 25, wherein the dynamic current switching circuit includes:

a main mirror diode;

a main fixed current source;

a first current switch; and

a second current switch.

31. (currently amended) The operational amplifier according to claim 30, wherein when the ~~operational~~ main amplifier core circuit is in a reset state and an input signal is high, then the second current switch directs a reset current through its drain, thereby allowing none of the reset current to flow through the main mirror diode, the first main leg, and the second main leg.

32. (currently amended) The operational amplifier according to claim 31, wherein the reset current flowing through each of the first main leg and the second main leg is about ~~250uA~~ 250μA.

33. (currently amended) The operational amplifier according to claim 30, wherein when the ~~operational~~ main amplifier core circuit is in an amplification state and the input signal is low, then the second current switch is off, thereby allowing an amplification current to flow through the main mirrored diode, the first current switch, the second current switch, the first main leg, and the second main leg.

34. (previously presented) The operational amplifier according to claim 33, wherein the amplification current flowing through each of the first main leg and the second main leg is about 1.2mA.

35. (previously presented) The operational amplifier according to claim 25, wherein a common mode output voltage is about 1.5V.

36. (previously presented) The operational amplifier according to claim 25, wherein a common mode input voltage is about 1.1V.

37. (currently amended) A method of processing a signal in an operational amplifier, the method comprising:

amplifying the signal with a main amplifier core circuit, the main amplifier core circuit including a first main leg and a second main leg in a branch of the main amplifier core circuit, wherein the main amplifier core circuit includes an upper gain enhancement circuit including a first PMOS cascode, a second PMOS cascode, and an AUXP operational amplifier, and wherein the upper gain enhancement circuit maintains an upper gain bias voltage across a first PMOS current source and a second PMOS current source;

biasing the signal with a biasing circuit; and

reducing power dissipation with a dynamic current switching circuit coupled to the main amplifier core circuit.

38. (canceled).

39. (previously presented) The method according to claim 37, wherein the main amplifier core circuit includes a lower gain enhancement circuit including a first NMOS cascode, a second NMOS cascode, and an AUXN operational amplifier, further wherein the lower gain enhancement circuit maintains a lower gain bias voltage across a main input pair.

40. (previously presented) The method according to claim 37, wherein the upper gain bias voltage is about 500mV.

41. (previously presented) The method according to claim 37, wherein the lower gain bias voltage is about 400mV.

42. (previously presented) The method according to claim 37, wherein the dynamic current switching circuit includes:

a main mirror diode;

a main fixed current source;

a first current switch; and

a second current switch.

43. (currently amended) The method according to claim 42, further comprising preventing reset current from flowing through the main mirror diode, the first main leg, and the second main leg when the ~~operational~~ main amplifier core circuit is in a reset state, an input signal is high, and the second current switch directs a reset current through its drain.

44. (currently amended) The method according to claim 43, wherein the reset current flowing through each of the first main leg and the second main leg is about ~~250uA~~ 250μA.

45. (currently amended) The method according to claim 42, wherein when the ~~operational~~ main amplifier core circuit is in an amplification state and the input signal is low, then the second current switch is off, thereby allowing an amplification current to flow through the main mirrored diode, the first current switch, the second current switch, the first main leg, and the second main leg.

46. (previously presented) The method according to claim 45, wherein the amplification current flowing through each of the first main leg and the second main leg is about 1.2mA.

47. (previously presented) The method according to claim 37, wherein a common mode output voltage is about 1.5V.

48. (previously presented) The method according to claim 37, wherein a common mode input voltage is about 1.1V.